

# Designing and Examining Multimedia Based Application Using Visual Basic on Early Literacy Learning

Rahmat Hidayat<sup>1</sup>, Seny Luhriyani Sunusi<sup>2</sup>, Yusni Nyura<sup>3</sup>, Andi Anto Patak<sup>2</sup>, Muhammad Tahir<sup>2</sup>

<sup>1</sup> Department of Information Technology, Politeknik Negeri Padang, Padang, Sumatra Barat, Indonesia,

<sup>2</sup> English Department, Fakultas Bahasan Sastra, Universitas Negeri Makassar, Makassar, Indonesia,

<sup>3</sup> Politeknik Negeri Samarinda, Kampus Gunung Lipan, Samarinda, Indonesia.

## Abstract

The need of quick, accurate, and efficient information is expected in all human activities. To obtain the needed information, multiple methods and media can be used. One of the reliable media is computer. A computer user can use more than one senses to run a multimedia-based application, especially to see, hear, and touch. Teaching and learning process of letter, number, and colours' recognition as well as vocabulary games using multimedia based application is expected to help pre-schoolers to attract them to learn while playing and leading to early literacy learning. This application is designed according to pre-schoolers' needs and support the flexible learning. This application made learning of literacy through multimedia based application more interactive and quickly understandable.

**Key words:** Teaching and learning; multimedia; pre-schoolers.

## 1. Introduction

Multimedia based application as computer assisted instruction is considerably meaningful for preschool education[1]. Teachers believe that multimedia can support the early literacy learning [2]. Users of this application can use more than one sense while running a multimedia-based application. For example, when a user run the media with her/his hand to use the sense of touch and she/he uses senses of sight and hearing that can work simultaneously. Thus, this advantage is noticeably valuable tool in education field. In the creation of multimedia based application, it is expected to assist the pre-schoolers to improve their ability to recognize letters[3]. This application is designed based on the pre-schoolers' need to attract their interest to learn while playing. The place and time to support

the use of this application is wide open. It can be used at classroom as media for teaching and learning in the teachers' control and at home as media for enhancement learning in the parents' support.

Preschoolers education is an education level that should be based on the specific strategy of teaching as the target of recipient information is children ages 2-5 years. It is vitally important presenting easy media to support enjoyable teaching strategy in order enable them to understand easily what the teacher explains[4]. It requires a unique media that can help sharpening their five senses to enrich the intelligence of thinking as well as a strong memory of what they have heard, seen and experienced. Multimedia-based applications is considerably good media in teaching and learning for children ages 2-5 years. Preschoolers are expected to learn and play by the time they are required learning to see, hear, and touch as the basic of learning readiness[5].

Language program of visual basic 6.0 software is basically understandable to programme even by people who are just learning to create multimedia based application[6]. It is easier again after the presence of Microsoft Visual Basic, built on the idea of simple scripting language for a graphic user interface that was developed in the Microsoft Windows operating system. Visual Basic is a programming language which is very easy to learn with visual programming technique that allows users to create better at creating an application program. This basic of creating multimedia application using visual basic is 'form' in which user can adjust the display of 'form' to run in script easily. The widespread use of Visual Basic is considered by the feature to interact with other applications within the Windows operating system with ActiveX control. By this component, the programmer or user

can make and use all the existing data model in the windows operating system. This is also supported by programming techniques in Visual Basic which adopts Visual and Object Oriented Programming. Visual Basic 6.0 is actually the development of previous versions with several additional components, which is commonly used today due to the feature of Internet programming with Dynamic HyperText Mark Language (DHTML) as well as some additional features and multimedia database are getting developed. Visual Basic is still leading to an application program due to the ease of the application development process[7].

## 2. Designing Multimedia Based Application

The designed multimedia based application using Visual Basic 6.0 has general specification as an interactive CD in which a set of software is designed to be a driver that serves as the media for teaching and learning [6]. Therefore, the interactive CD is made as attractive as possible, starting from the arrangement in terms of animated colour, the language used in the 'education games' and audio that can attract the memory and imagination of children. In addition, the design of multimedia based application is more directed to design of animated multimedia based application as tutorial CD on teaching and learning of Alphabet for pre-schoolers.

### a) Interface of Visual Basic 6.0

Designing interface required the feature of ease to access [8]–[10]. Interface of Visual Basic 6.0 provides menu, toolbar, toolbox, form, project explorer, and property that enable teacher to design simple interface as in the following Figure 1:

Making an application program using Visual Basic 6.0 is done by making the display on 'form', and then create script program within the required components. 'Form' is designed by components that are in the toolbox, and the properties of any components must be set up in the 'Property' window. The 'menu' in visual basic is the operational standard in the windows operating system, such as creating a new form, create a new project, and open and save the project. In addition, there are features on making visual basic in the menu. Microsoft Developer Network provides Visual Basic the complete and detailed help.

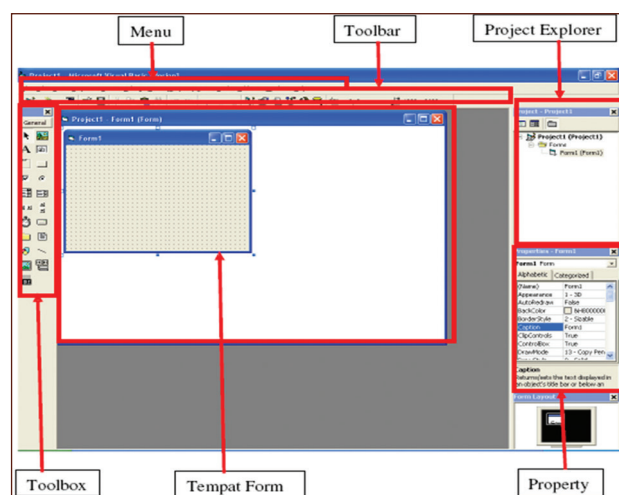


Figure 1. Interface of Visual Basic 6.0

Toolbox contains components that can be used by an active project, meaning that the contents of the components in the toolbox is highly dependent on the type of project being built. A component standard in the toolbox can be seen in the Figure 2 below.

### b) Designing the Interactive CD

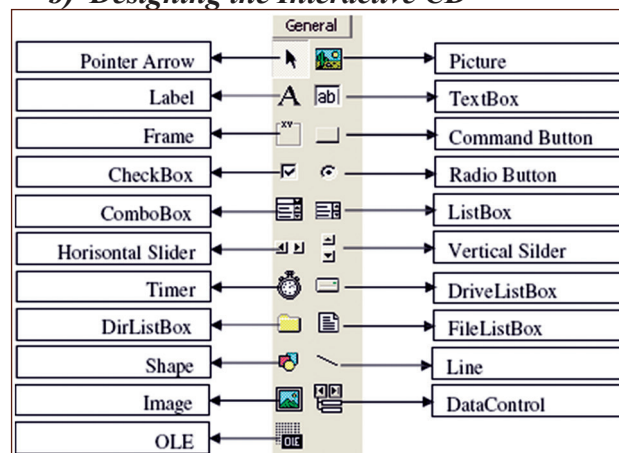


Figure 2. Toolbox

In an interactive CD-package, the programmer can set up some forms that will make it easier for users to use and learn the provided learning materials. Besides, the interactivity can help teachers the educational value of CD Package [11]. All the learning materials used for designing interactive CD is obtained through direct observation to educational institutions that provides special teaching and learning for pre-schoolers. This paper provides the structure of designed forms as follows:

Form 1: In this form 1, the sound 'welcome' is presented as the opening sound. In the main dis-

play, the designed forms or syntaxes were shown as 'Home' menu on multimedia based application of teaching and learning for pre-schoolers. In the 'Home' menu, there are several options menu that can be selected. The options include forms of, letter, number, and colour recognition as well as games for brain exercise. In the main display, the designed forms or syntaxes were shown as 'Home' menu on multimedia based application of teaching and learning for pre-schoolers. In the 'Home' menu, there are several options menu that can be selected. The options include forms of, letter, number, and colour recognition as well as games for brain exercise. The following figure 1 showed the 'Home' display.



Figure 3. Home Display

Form 2: In this form, the alphabet is displayed. Each letter is introduced by showing a picture to further facilitate the children to remember each letter by displaying images of animals or objects from the first letter in the highlight. The Figure 4 above showed the twenty six letters. This form comprises a display of alphabet with sound 'Ayo belajar ABC'. This feature can train preschoolers' to see, hear, and touch simultaneously [5]. This is also the basic for preschoolers to learn reading [3] and as the support for literacy learning [2].



Figure 4. Letter's recognition form

Form 3: In this form 3, the series of numbers which are attributed to letter and sound based on the clicked number, were introduced to children. This displayed 10 digit on numbers. This is in the spirit of early literacy learning [2] by introducing not only letters as in Figure 4, but also numbers as in following Figure 5. The sound is also being provided, so that preschoolers can see the number, hear the sound, and touch the mouse for learning to see, hear, and touch [5].

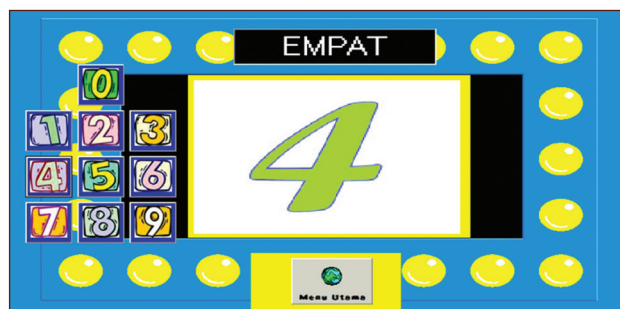


Figure 5. Number's design form

Form 4: In this form, the child is given the freedom to know the colour. When children start to feel bored, the following colour form can be showed. Pre-schoolers can learn to know colours without getting bored. In this form, preschoolers are being trained to know the color and exercise their memory. This is a challenge for teachers to appeal and students' cognitive processes[12]. The sound is also being provided to enable the pre-schoolers to learn to see colour, hear the sound, and touch the mouse to click the suitable button [5]. This is also can be used by teachers to teach early literacy [2] to teach pre-schoolers how to read [3].

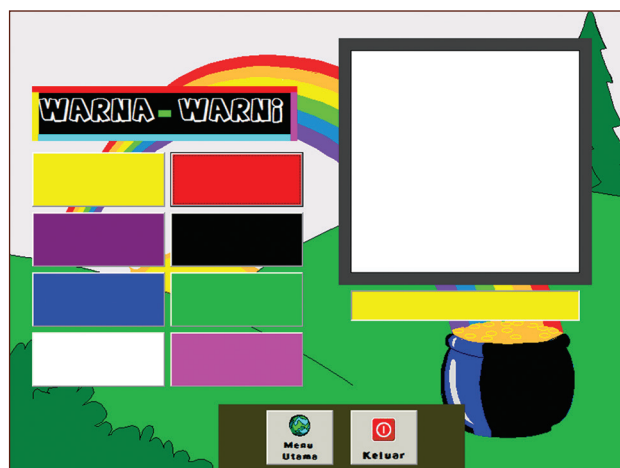


Figure 6. Colour's recognition form



Form 5: Form 5 contains a game that sharpens the pre-schoolers' ability to think and remember what they have learned as it has been previously exercised. In this form, pre-schoolers can play while learning. This is the dynamics of teaching using multimedia for friendly and adjustable learning[13]. By looking at the fruit, pre-schoolers learn to see, listening to the sound, they learn to hear, and clicking the related fruit picture, they learn to touch [5].

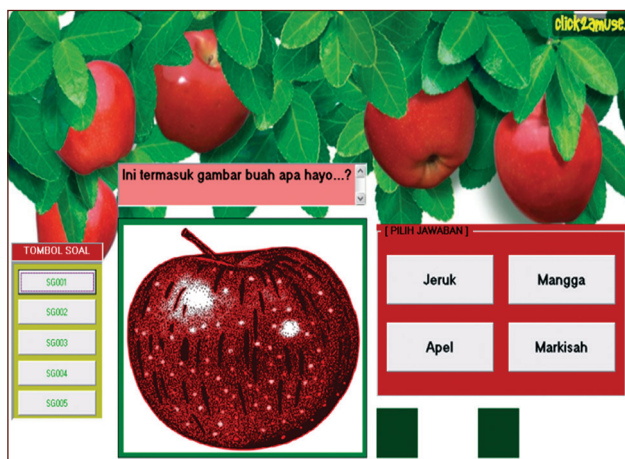


Figure 7. Guessing picture form

The sound feature of this multimedia based application is also expected to be a memory game to train the child ability to remember. Children can be trained to remember or analyze a displayed image. Obviously, by this image, teachers can teach the preschoolers early literacy learning [2]. These are the advantages of teaching and learning through multimedia based application [14], [15].

### 3. Examining the Multimedia Based - Application

Fifteen preschoolers in South Sulawesi were tested. They responded the questionnaire at the end of one day training on multimedia based-application for early literacy learning. Figure 3 (home display), Figure 4 (letters' recognition form), Figure 5 (numbers' design form), Figure 6 (colours' recognition form), and Figure 7 (guessing picture form) were tested in this study. The researchers ticked their responses in a form for making preschoolers focus to enjoy playing the multimedia based application. The responses by the preschoolers were presented in the following Figure 8.

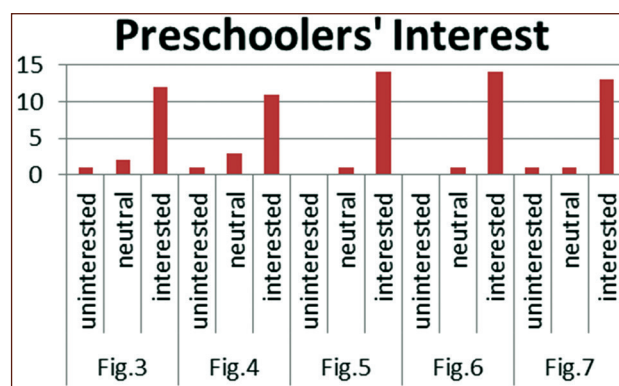


Figure 8. Pre-schoolers' interest on multimedia based application using visual basic

Figure 8 above showed that most of the pre-schoolers were interested in multimedia-based application using visual basic. Figure 3 (home display) showed that there were only one pre-schooler responded 'uninterested', two of them chose 'neutral' and twelve of the respondents chose 'interested'. Figure 4 (letters' recognition form) attracted pre-schoolers' interest indicated by only one person chose 'uninterested', three of them were 'neutral', and eleven of them were 'interested'. Numbers' design form as in Figure 5 above showed that none of the pre-schoolers responded 'uninterested', only one was 'neutral', and fourteen were 'interested'. Similarly, Figure 6 (colours' recognition form) showed the high interest of the pre-schoolers on this feature. None of them chose 'uninterested', one was 'neutral', and fourteen were 'interested'. Finally, Figure 7 (guessing picture form) showed that only of the pre-schoolers were 'uninterested' and 'neutral', while thirteen of them were 'interested'.

### 4. Conclusions

This study showed the high interest of pre-schoolers on using multimedia based application as an effort to introduce them to learn literacy earlier. The easy display of 'visual basic program' contributed to the success of making pre-schoolers are interested in early literacy learning. Using multimedia based application in an interactive learning system. Preschoolers can quickly recognize letter by letter through this interactive media. This interactivity feature enables the teacher to assess the pedagogical value [8], [11]. This application is considerably suitable for preschoolers because children are required learning to see, hear, and

touch [5]. Children can also be simultaneously introduced to the world of computers starting from moving the mouse to run the multimedia based application for early literacy learning [2].

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*Corresponding Author*  
 Rahmat Hidayat  
 Department of Information Technology,  
 Politeknik Negeri Padang,  
 Padang,  
 Sumatra Barat,  
 Indonesia,  
 E-mail: rahmat@polinpdg.ac.id  
 mr.rahmat@gmail.com